

Minnesota - Wisconsin

~~1894~~ 1891

7762



Alto 1898

phillips.

doc. 72

Charles Schuchert

coll. at

Nunah
Oskosh

Iron Ridge, Wis

Beloit

Janesville

Monroe

Mineral Point

Debuque, Iowa

Graf

McGregor

Decorah

Granger, Minn.

Preston

Wykoff

Spring Valley

Stewartsville

Kasson

Cannon Falls

Aspelund

Rockton

Appleton
Clifton

Rockton

Hansen's farm
Fountain

Big Springs

doc. 72

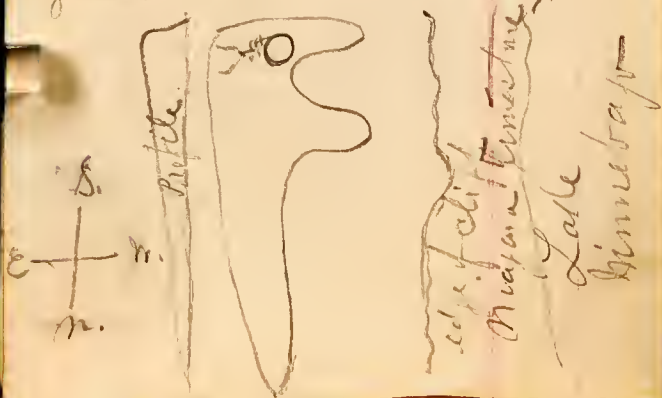
P.R. fare from Albany	
to Crimminsford	3 00
Sleeper to Chicago	4 50
Lunch	1 00
Dinner	1 00
Sleeper to Crimminsford	2 00
Breakfast	.75
	39.25

Paid July 10-91.

O D. Mansfield
Shenwood Wisconsin

Mr. Bishop the
man that dug up the
mound buried skeleton
Mansfield was the one to find
it.

The following is a diagram of the
grave



Jens. Gorgensen

Richard ~~Hoare~~
Hoare

General Point Wis.

Wm. Dwyer

Decorah Iowa

The quarry man that has
the large Orthoceras











From book

Deloit. Wis.

Cincinnati
group
165' - 240'

Galena 125' - 200'

Upper Blue Bed 15'
Very fossiliferous

Upper Buff Bed 54'

Fossils in colonies near the center.

Lower Blue Bed 23'
Very Fossiliferous

Lower Buff Bed 23'
Fossils not very abundant except in the cherty
horizons.

Sandstone 2'

Impure limestone 4'

St. Peter

Trenton

Notes from book to
Deloit. Wis. 165' - 240'

Notes from books

Large quarry about 3 m. n. of Beloit
near the C. N. W. R. R.

Another quarry on the same R. R.
not so far north. See the
ravine below this quarry in the
"Lower Blue Bed".

Carpenter's quarry a mile or more
to the S. ^{W.} of the last. See also
the ravine below this quarry.

Hess' quarry and Hanchette quarry
near by.

Smith's quarry: $\frac{1}{2}$ mile n. w. of the
last quarry is the one owned by
Smith. The Salina comes in
in this quarry.

The quarries at Rockton Ill. present a
magnificent section of the Upper Laff
beds to the lower portion of the
Upper Blue Bed.

100 species are known from these loc.
Salina beds cap the hills. The lower portion
only is to be found. See cut on section Union
R. R. in the town of Turtle between Beloit and Clinton
junction.

notes from book

Janesville

A number of extensive quarries and natural exposures are to be found here.

At a quarry $1\frac{1}{2}$ miles west of the city is a large quarry. The basal layers are not very fossiliferous. Above these lie layers "eminently fossiliferous".

At the lower R.R. bridge at Janesville the whole of the Lower Buff is shown, resting on the St. Peters, and overlain by 30' of the higher beds. These beds are here less fossiliferous than usual.

About two miles above the city Rock river cuts through the lower part of the formation and into the St. Peters, and a ravine coming in on the east, through which the road

...cave coming in on the
east, through which the road.

ascends from the river, exposes a
large part of the higher strata. Fossil
abundant in the usual layers.

Farther up the river above Fulton Center
the lower strata crown the bluff
with weather-worn outlines. Near
the water edge the St. Peter comes
in.

Neenah

Thompson's quarry and others extending north to the county line. This is in the Trenton horizon.

About one mile S.E. the Salina comes to the surface and is quarried to the depth of a few feet. The shaly layers are quite fossiliferous.

Hartford

The Cincinnati group underlies the iron ore bed of this region. It is usually penetrated in excavations for cellars, wells etc. The upper portion is quite fossiliferous.

Menasha

In the vicinity of Mrs. Verbeke's resi-
~~to~~ dence are several small quarries

Galena. Two quarries only a short
distance apart in or near the
city of Menasha.

Os Kosh

Two miles s: w. are quarries in the Salina. The lower portion is $15\frac{1}{2}$ feet in heavy bedded and has but few fossils. The upper portion consists of alternating beds of limestone and shale with a greenish-gray color. Quite fossiliferous.

Flintville or ^{Big} Suamico.

The change of the typical dolomitic
Galena into the shaly beds is
best illustrated in this vicinity
on the Big Suamico.

These same beds can also be seen
along the shore of Green Bay as far
north as Ponsander. Beyond that
it is more or less drift covered.

Pewaukee.

Robert's quarry on the south side of Pewaukee Lake there has been a shaft dug into the Cincinnati group some 50 feet for coal. The debris thrown out is full of fossils.

Notes made on trips

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Tuesday July 14-91

Left Minneapolis Minn for
Neenah Wis. 6.25 P. M.
Arrived in Neenah 4 A. M.

Wednesday July 15-91

Spent the day in four quarries about
one mile to the south east of Neenah
in the upper member of the Salina
formation. The country is almost flat
in this region and therefore the quarries
are below the general surface of the
surrounding land. The beds seen
cannot exceed ten feet. The upper
most layers are very shaly, somewhat
sandy, rapidly decomposing when exposed
and of a light yellow color, with
greenish spots. Fossils rather common
but not well preserved, owing to the

soft and sandy nature of the shales.
The most abundant fossil is a sp.
of Prasopora. Other species are Cithi
testudinaria, C. bellarugosa, C. sp.
similar or like the one occurring at
Cannon Falls (finely striated, C. Leavenworthi)
Platystrophia bifurcata, Leptaena
sericea, several species of Gastropoda
and one species of Ilacenus. Also
one specimen of Lingulagma Chuchey
and an Orbiculoidea sp.?

Neenah Thurs day July 16-91

Neenah Thurs day July 16-91

Had a buggy and drove over to the east side of Lake Winnebago for the purpose of collecting in the Hudson River shales. About two miles south of Clifton I found an exposure on the water edge. The shales at this locality are exposed about fifteen feet, weather to a blue color but are chocolate tint upon fresh fractures. The basal layers are a mass of Leptobolus occidentalis. Some thin layers of limestone have bryozoans but their preservation is so poor that it is impossible to determine them. These layers seem to be directly equivalent to the Maquoketa shales of Iowa. Near the village of Clifton and north of ^{the} Lime Kiln, about thirty feet above the lake level I picked up

several specimens of Rhynchonella
cajazi.

The Hudson River shales in
this region is about 75 feet thick above
the lake level. Above this comes
the Gajara limestone forming the cliff
the lower layers of which are very
cherty. Nowhere are there any good
exposures the whole being covered
by the Gajara talus.

Neenah Friday July 17-91.

Yesterday in going over to Clifton I saw great piles of rock in the city of Menasha which I thought would prove to be Salina. Upon investigation this morning I learned that it was taken out of the river by the dredge and proved to be the lower Cherty layers of the Niagara. If I remember the State Geological Map correctly the Niagara is not fluted as going this far east.

In a small quarry on the road to Appleton belonging to Jens Jorgensen and about one mile and one-half east of Menasha the Niagara is again exposed on each side of the lower house. There is a distinct anticlinal to be observed in these two quarries. No fossils to day.
Left for Oshosh 2.05 P.M.

Oskosh, Friday July 17-91.

Arrived at 2:37 P. M. Started out at once for the quarries 2 miles to the south ~~west~~^{east} of the city. Four large quarries were visited and found to be in the Salinas. The horizon is the same as those at Neenah. Fossils are more numerous and of a greater variety. Found some fragments of Lingulasma schuchardi and four specimens of Clitambites americana. The other fossils are about the same as those collected at Neenah.

Oskosh, Saturday July 18-91

Oshosh Saturday July 18-91

Finished collecting in the quarries visited yesterday afternoon.

Left for Fond du Lac at 2.37 P.M. Made direct connections here for Iron Ridge which place I reached at 5.05 P.M. After supper walked to Iron Mountain and examined the extensive diggings for the Clinton iron ore. This band of ore is at least ten ¹⁵⁻¹⁸ feet thick. The upper surface is uneven and directly overlain by the Niagara dolomite. To the south of the diggings in the road to Iron Ridge the Hudson River shales are somewhat exposed. Picked up a few fossils and returned to the hotel.

Iron Ridge Wis.

Sunday July 19-91.

Started out early for the exposure discovered last night. Picked up quite a number of fossils. Was directed to a place near by back of an abandoned house to the debris taken from a well. The amount of ^{for investigation} ground was small but very prolific in bryozoans. The other classes of fossils are rather rare at this locality.

In the afternoon, the Hotel Keeper Mr. P. H. Kholinger drove me over in his wagon to a quarry in the Niagara about 3 miles to the north of Iron Ridge. He said I would find "petrified hickory nuts" here.

petrified hickory nuts ^{found} here.

After considerable searching we found them and they proved to be a species of Pentamerus.

Saw no other Hudson River exposures on the way other than that looked over in the morning.

Beloit Wis.

Monday July 20-91.

Raining at Iron Ridge this morning. Not wishing to lose any time packed up and started for Beloit via Milwaukee at 8.45 A.M. Beloit was reached without delay at 12 P.M. Started out at once for the quarry on the Chicago and North-western R.R. Found two of them about $2\frac{1}{2}$ miles north of Beloit. Fossils not numerous.

Beloit Wis.

Tuesday July 21-91.

Visited the same quarry

visited the same quarries
seen yesterday. The fossiliferous
horizon is known in the *Kie.*
reports as the "lower blue beds"
and are the top layers of
these quarries.

Beloit *Kie.*
Wednesday July 22-91.

Looked over the largest quarries
in the vicinity and known in
the *Kie.* reports as Carpenter's
quarries now owned by Mr.
Damp. The horizon is the
"upper buff beds". Fossils very
poor and not abundant.
In the afternoon started for
the quarries at Rockton Ill.
This place is but four miles S.
W. of Beloit yet the limestone
is ^{hardly} decidedly more compact than

in any exposure of the "upper
buff" in the vicinity of Beloit.
Fossils rather rare but fairly
well preserved as casts. Bought
one of the men in the quarry
a few fossils for which I paid
him 50¢. Stopped over night
in Rockton ~~in~~ at the New
England House.

Beloit Wis. (Rockton Ill.)
Thursday July 23-91.

Started for Beloit at 8.45 A.M.
Reaching there packed my fossils
and ^{then} started for Porters five miles
east on C. M. St. Paul R.R.

Found no fossils. The "upper buff"
beds at this place are very sandy
and friable. Got back to Beloit
and started west on the Hancock
quarry and another one a short
distance to the S.W. of it. The
first has not been worked in years
and is entirely overgrown with
grass and weeds. The other one
is a new quarry in the "upper
buff" Fossils Rare. Returning
I finished my packing box which
I shipped by freight shortly before
6 P.M. At 7.33 I was on my
way to Janesville.

Jamesville Wis.
Friday July 24-91.

Collected today in two quarries one on each side of the road just over the vehicle bridge below the C. N. W. R. R. bridge. The beds exposed are the "lower buff" and the "lower blue" beds. Fossils quite abundant and well preserved. Also looked over the rock thrown over the embankment of the canal to the woolen and cotton mills. See section of a small quarry to the east of the cotton mills.

Jamesville Wis.
Saturday July 25-91.

Looked over a quarry about one mile from the depot on the

one mile from the quarry about the
C. M. & St. Paul R.R. to the north
~~to~~ west. Here the "lower buff"
is seen to rest on the St. Peter
sandstone. I could not see it as
the quarry in that part was filled
with water but the quarry men
said that "white sand rock" came
in there "below the limestone". The
entire "lower blue bed" and about
15 feet of the "upper buff beds" are
also exposed in this quarry. Fossils
not as numerous here as in the
quarry to the south.

In the afternoon looked over
the rock thence over the canal
embankments near the woolen
mills to the west of Janesville.
Found the usual fossils. Sactio-
poda and Pelecypoda most
abundant.

Janesville Wis.

Sunday July 26-91

Spent the morning in writing letters. In the afternoon packed fossils for a time and then enjoyed a boat ride up the Rock River to the picnic grounds. At this place on both sides of the river are quarries in the "lower buff" and "lower blue beds" resting upon the St. Peter sandstone.

Janesville Wis.

Monday July 27-91.

Packed two boxes of fossils and had them forwarded to Minneapolis. Took the

train for Minneapolis.

9.33 train for Inmoe.
Before noon visited a
quarry in the town of Inmoe.
No fossils worth taking along.
In the afternoon walked
west on the C. M. & St. Paul R.R.
about 2 miles. Several cuts
and a quarry were examined
all in the Salina horizon. Fossils
very poor caused by the rough
crystallization and the soft nature
of the rock. Receptaculites —
abundant

7.03 P.M. started for
Mineral Point Wis.

Mineral Point Wis.

Tuesday July 28-91

Spent the morning ~~in~~ collecting in quarries in the rear of the wooden mills and the Gine factory. The "lower ^{buff} sand" and the "lower blue" beds are exposed. Fossils not numerous. Bought several Orthoceras from one of the men in this quarry.

Since Monday my throat has been very sore annoying me considerably. At noon a fever came over me, compelling me to remain in the hotel and attend to my throat. The fever left me late in the afternoon.

Rain after 3 o'clock.

Mineral Point Wis.

Wednesday July 29-91.

Drove over to Dodgeville eight miles to the north. Mr. Mark the hotel keeper has quite a collection of minerals etc. but few Trenton fossils. Visited a few localities in the "lower blue" beds but found very little of interest.

A thunderstorm set in at 2 o'clock lasting until 3.30. Returned to Mineral Point at 4.30. After this visited a mine on the outskirts of the village. The crevice leads down to and through the lower blue beds into the lower buff where a horizontal deposit of lead, zinc and barite

of about two feet thickness has
formed. I understand from
miners that all the clevens
form a horizontal deposit at
this level. Lead is called
by the miners mineral; zinc
blend = black jack; carbonate
of zinc ^{or smithsonite} = dry bone. This
dry bone is used exclusively
at the zinc factory in making
oxide of zinc for paints.

Thursday July 30-91
Mineral Point Wis.

Collected in the surface
burrows on the farm of Richard
Hoare. It is at this place
only that I was able to collect
siliceous fossils. These diggings
are quite old and ^{have been} picked over
considerably. Still I got a number
of fossils mainly however
Streptelasma corniculum.

Visited other diggings in
the afternoon but found
nothing.

Mineral Point Wis.

Friday July 31-91.

Packed up a box and forwarded it to Minnegoli.
Visited another surface digger in the fair grounds but found only a few fossils mainly *S. corniculatum*.

2.05 P. M. started for Dubuque via Warren Illinois
Arrived at Warren 3.25 and had to wait until 5.35 for the Ill. Cent. R. R. train for Dubuque. Visited a quarry in the Salena formation east of the town. Fossils few and poorly preserved. Arrived at Dubuque 7.15 P. M.

Dubuque Iowa
August 1st 91 Saturday.

Rain until 9.30 A.M.

Visited a series of quarries in the southern portion of the city. The Salina formation at this place, and in fact all the way east to Salina crop out in great bluffs and heavy bedded throughout. The fossils seen are usually casts, poor and not very numerous. Picked up a Chonetes which seems to be identical with those found by Jardezon and Riches. Also a few specimens of Heterocrinus and Synthesium.

2nd left for St. Paul on the Chicago St. Paul and Kansas City R.R. Arrived there at 3.45 P.M. in the afternoon in the R.R. cut just north of the station.

Fossils quite plentiful particularly
Outhoceras grayi and
Leptobolus occidentalis. Found
accommodation at Mr. Britbach
in the village of Lattnerville
about mile north of Sraf.

Sraf Iowa
Sunday August 2-91

Spent the morning and afternoon
in the R. R. cut and the by some
in the wagon road near by.
At the latter place quite a
number of Spring Valley Union
Brachyopoda species occur.
Some of these are *Leptaena sericea*
Rhynchonella capax, *Strophomena*

Wisconsinensis, Orthis testudinaria
etc.

Graft Iowa
Monday Aug 3^d 91.

Collected in the morning in
Prairie Creek just opposite
to Mr. Breitbach farm. Fossils
about as in the R. R. cut. Higher
layers are here to be seen which
prove to contain the Brechtford
fauna of the wagon road cut.
from 11 to 12 A.M. packed two
boxes which were shipped for
freight. Collected again in the
R. R. cut and wagon road cut.
Started for Dubuque at 3.45 P.M.
Then wrote a letter to Winifred
and another to Hall. Left
Dubuque for Mt. Superior at 8.05
P.M. reaching the latter place

at 10.40 P. M.

Mr. Sregor Iowa
Tuesday Aug 4th 91

Visited a quarry just west
of town and found it to be of
very heavy bedded dolomitic
limestone. No fossils visible.
Face of quarry nearly 40 feet.
Then followed the road out
about $4\frac{1}{2}$ miles and came into
some thin greenish limestone layers
containing a fauna identical
with the one occurring at Mineral
Point just above the Iowa build-
ing stone. The exposures are
very limited and therefore could

not get a large amount of fossils.

In the afternoon visited a quarry operated by the government about $2\frac{1}{2}$ miles north of McGregor. As it is all in the lower dolomitic limestone and St Peter I found no fossils.

Llcorah Iowa
Wednesday Aug 5th 91

Started at 8.20 A.M. for Llcorah Iowa via Calmar. Arriving there at 1 P.M. Received a card from DeField, stating that he had left for McGregor.

Collected this afternoon at an old abandoned quarry in the bluff of the upper Iowa River. In quarrying the lower Trenton limestone which is here very compact.

and in layers from 8 to 10 inches
the overlying "green shales" are
thinner. In these dumps
the fossils are numerous and
of the same species as ^{those that} occur at
St Paul and Punineafotie.

The limestone makes a good
marble but of poor color and
is cut into slabs in a mill
near by, operated by water power
derived from a large spring coming
out of the Salina limestone.

Above the "green shales" come
some limestones and shales of a
blue-white color and holding a
Salina fauna.

The green shales are not over
10 feet thick. Of this thickness
I saw eight feet.

Decorah Iowa.
Thursday Aug. 6-91.

Collected today in various
quarries all in the lower Trenton
limestone and green shale.

Packed up my fossils so
that I can get away early to-
morrow morning.

Made an agreement with Mr.
Dwyer a quarryman for
two dollars that he will pack and
send two very large specimens of
Orthoceras to Prof. Schoell.

See sections in small book
of this locality.

Lecorah Iowa

Friday Aug. 7-91.

Shipped a box to Winchell.
My slip was forwarded to
Hoffmiller at Cannon Falls. At
9 o'clock I was in the way to
Sanger, Minn.

Contracting a heavy cold
while in Lecorah which became
very alarming in its nature during
the trip north. At Bluffton
I purchased some gasoline, had
dinner and proceeded north
being unable to collect any
where along the road because
of my poor condition.

Arrived in Sanger at 7 o'
clock P.M.

Met Jayula at 7.30 P.M.
Had a bath and slept as usual.

Brainer Minnesota.
Saturday Aug. 8-91.

Crossed back into Iowa about
one mile south of Florence^{ville}. In
the road the Hudson River group
is somewhat exposed forming
specimens of Q. Whitfieldi, Rhynchonella, agax and Strophomena
corniculum.

In coming through Brainer I
spoke to the dayist, a graduate
of McGill College Montreal, direct-
ing me to Mr. Harse as a
collector of fossils. Called on
Mr. Harse and found him to have
many interesting specimens. He
showed me a large slab filled
with Orthoceras pregarium and
identical with those collected by me
at Esop. He says it was found
near Brainer but this certainly

is a mistake, as the exposures
seen are not of a chocolate
color but a bluish white.

He also showed me several
examples of *Pentamerus* *Allyn*
preserved in ^{matrix} ~~siliceous~~ casts of
the interior. These have ~~likely~~
been drifted here from the north or
indicate the existence of *Majana*
strata in the vicinity.

Of trilobites he has quite
a selection giving the survey collec-
tion several fine examples. Two
graptolite graptolites are to be returned
to him with graptolite impressions.
These trilobites are found in
a quarry on the farm of a Mr.
Huntz about two miles up the
river from Orange and is
located in Iowa. The associated

located in Stranger and the association

fossils are not indicative of the age of the deposits. They are either Upper Solonch or Lower Hudson River. If the latter which is probably the case as we found no Solonch fossils, then the formation has here a thickness of at least 80 feet. On the way back to Stranger in the road, and 75 feet above the river, we found the same assemblage of species as found in the morning bog of Florence.

Hudson River group fossils were again found in the debris at the base of a large bluff about one mile up the stream from Stranger. If this entire bluff belongs to the formation it would give it a thickness of about 80 feet. The fossils collected are at least in part Hudson River fossils.

Stranger Mine.
Sunday Aug. 9-91.

Started early for Preston.
About one mile or more east
of Stranger the road rises out
of the valley and has bluffs
on each side. The rock weathers
readily and has numerous
holes of various size giving a
characteristic appearance. Fossil
none. Horizon doubtful. Top-
graphically they hold about the
same position as those to the n.w.
of Stranger and doubtfully identified
as Hudson River.

In going into the valley in
which Preston lies we came over
green shales ^(about the level) in which we picked
up a small lot of fossils. Trenton
limestone about 10 feet; St Peter
sandstone; Shakopee.

limestone about 10 feet; St. Peter
sandstone
and then the Jordan
sandstone forming the ^{lower part of the} bluff
for about ten feet.

Preston Minn.
Monday Aug. 10-91.

Packed two boxes and sent
them on to Minn. Then drove
through the valley towards Fountain
near the village the road rises
rapidly and passes through the
Trenton, green shales and Salina.

Then drove over to Ellie Stancus
place and collected in the Trenton
shales. Found the gastropods very
abundant.

Salina
Limestone
10 feet
Shale 24-30 inches. Fossils separate
Limestone about 2 feet
Green shales
10-15 feet
region of gastropods

After dinner drove to the Big Springs and then to Allen Shurtel quarry. This horizon is Trenton limestone with some thin bands of shale. Nearer the springs than the Hunt quarry is where I found that little species of *Teribratula*, and these are also in the Trenton limestone.

The springs come out just above the green shale. From this level to the general level of the country is at least 125 feet, the thickness of the galena.

About four o'clock started for Lykoff.

My Koff Quimm
Tuesday Aug. 11-91.

Looked over the collection of
Dr. Robbins. One Staurium he showed
us which appeared to be distinct
from any seen before by me. He
also presented me with a specimen
of Strophocephalus Euphraticus which
appears to have been found in the
drift. Also a specimen of Strophomena
brevis? probably from the Salina
limestone.

9.30 started for Spring Valley.
About four miles west of My Koff a
cut occurs in the rail-road exposing
the upper beds of the Cincinnati. About
one mile, still farther west another
cut occurs at a somewhat lower
level in this formation. The large
Strophomena alternata like var
lecontei is common in the cut.

After dinner drive to Beisach
dam about $4\frac{1}{2}$ miles N.E. of
Spring Valley. The bluff at this
point are about 125 feet high of
a bluish-white color and
thin bedded. Near the base and
in loose material I found picked
up two specimens of Zygospira
orealis while I picked up a small
slab with several specimens on it
some 15 feet above the water. I
am of the impression that this
specimen comes from a still higher level.
On the top of bluff I picked up
Receptaculites Orani, Trochonema
umbilicata, and Myriothidium
major indicating that the entire
bluff is of Saline limestone.

Spring Valley
Wednesday Aug. 12-91.

Visited a small quarry in the Devonian one mile east of the town and near the rail-road. Fossils fairly numerous and of about ten species. Then visited a quarry about one mile west of town also in the Devonian. On the side of the road near the entrance to this quarry there is a small exposure of Devonian which appears to be the lowest beds of this formation. From this level to the top of the quarry mentioned above the thickness of the Devonian in this section must be not less than 20 feet in thickness. Fossils in this quarry not numerous. On our return to the town and near the station on the Princeton R.R. at the base of the trestle there is an exposure of the Cincinnati group. A little

to the north of the latter is the
quarry visited by Ulrich and myself
four years ago. The fossils are few
in number and indicate layers
of the same horizon as the second
cut on the rail road visited yesterday
on our way from Sigiloff to J. Valley.
The central thickness of the *Circinulati*
beds can hardly be over 20-30 feet
in thickness.

After dinner walked to the
boring pit east on the R.R. This loc.
once prolific in specimens is now
nearly barren.

We joined Leffels and then
drove to Etna eight miles south
to see if possible more of the *Lev.*
and *Circinulati* groups. On this we
were disappointed, seeing a few
but very meagre exposure of *Lev.*

As we could get no hotel accommoda-
tion we returned to Spring Valley.

Spring Valley,
Thursday August 13-91.

Started north for a cut about
2 1/2 miles N.E. on the Kinross and
South Western R.R. The cut proved
to be Devonian about ten feet deep.
Just a little north on the R.R. there
is a borrowing pit exposing the lowest
layer of the Devonian and the upper
layer of the Cincinnati group. Between
the two formations there is a bed
of a reddish ^{about two feet thick} ~~limestone~~ ^{limestone} in which are
numerous iron nodules and corals
in a siliceous condition. There are
about ten species and indicate a
horizon lower than the superimposed

After Leominster. At present, I shall
correlate this horizon with the beds
found at Katelyon Iowa. About
one mile north of this place these
same bed was observed but nearly
washed away and only one coral
was observed. Between these two
places there is one borrowing pit
in the Cincinnati group and one cut
in the Leominster.

After rejoining Joffield, ^{the} drove
to Stewartsville. In a stream
a short distance to the south of
Stewartsville and just below the road
bridge I found in a heavy bed of
limestone a fine specimen of Lingula
ma. obelisk. This specimen was
imbedded with the pedicle end
downwards the natural position of
recent Lingula. Above this bed

of limestone there is a series of very
sandy shale of a yellowish color
and in thickness about 15-18 feet. We
estimated these beds to be about 30
feet thick in going along the road. The
observed fossils were Orthis testudinaria
O. (P.) crassa.

After supper in Stewartville
walked to the quarry in the Salina
limestone. Gastropods quite abundant
such as Maclurea magna, Murchisona
magna, Fusispira ventricosa and
Rhipidaculites Oweni.

Stewartville Minn
August 14-91 Friday.

Finished the quarry seen last
evening. Saw good Endoceras five
feet in length but rather poorly preserved.
Have given a pair specimens

of *Smicras anceps*?

As it rained rather hard last night the roads were in poor condition this morning making traveling very slow. Reached High Forest at 9.30. No *exposures* seen. They drove north for Nassau which place was reached at 6.30 P. M. Passed over several well *exposures* of Salina age. Nothing worthy of mention.

Kasson Minn
Saturday August 15-91.

No quarries at this place.
Started out at once for Mantorville
 $2\frac{1}{2}$ miles north of the place.

The Mantorville quarries are
Salina limestone and just above
the Salina shale. These
shales are shown in the stream
above the dam. See section
a few pages forward.

At these quarries we found
among other things the *Ichizotreta*
m. sp. and *Singula* *Stupkurti*.

3 P. M. started northward
arriving 8.30 P. M. at Asman
Hinge house one mile north
of Aspelund. No fossils
seen along the route.

Cannon Falls

August 16 Sunday

Drove this morning from Mr. Osman King house to Cannon Falls a distance of 12 miles. Rested during the balance of the day.

Cannon Falls
Monday August 17.

Packed two boxes of fossils in the morning.

Collected in the afternoon along side of the road $2\frac{1}{2}$ miles south of Cannon Falls in the Salina shales. This is the *Orthisina* horizon of Mr. Desfield.

Cannon Falls
Tuesday August 18.

Started out early and drove
six miles S. E. W. to Mr. Harrison
farm. Along the hills back of
his house are several exposures
in the Salina shale horizon.
Fossils numerous and well
preserved. Mr. Ledfield found
22 specimens of a Camarilla
which may prove to be new. This
species is restricted to a small
area and came out of a pocket
as none were found elsewhere.
I picked up a very fine specimen
of Ilacmus.

Then collected at a place
about 9 miles S. of Cannon Falls
in the Salina shale at a some-
what higher horizon. Saurofoda
abundant.

7.20 P.M. we reached Osman
Kings house where we stopped
over night.

Near Aspelund
Wednesday August 19.

Looked over a small quarry
just north of Osman Kings farm
in the Salina limestone horizon.
Fossils not numerous. A very
large Orthoceras was given me
by the quarry-man.

Then drove 2 miles west to
a large exposure in the Salina
shale horizon.

After this on our way
back to Cannon Falls we visited
several small exposures

all in the Salina shaly.
At one place we found the range
of Orthis americana to be
nearly 50 feet.

Cannon Falls
Thursday August 20-

Packed two boxes of fossils
Spent the balance of the day
in discussion.
3.20 P. M. left for
Minneapolis.

Crinatherium sylvestris Emmer
acaster the A. M. N. V. says it
is from the coal seam of the Deep River
beds, Cumrook, N. C.

Another feature is the installation of mineral
cristals in very white paper trays around
the inner margin of which are inserted a
thin glass block frame. The bottom is covered
with white loose cotton upon which the label
and specimen is laid. The label is just fastened
on a small sloping block

Age of Mammals

Age of Mammals	a.p.R.	Sub	Locality	Age
Quaternary	Recent & Pleistocene	Bliss	Equus & Megalonyx	150
			Blanco & Palo Verde	150
	Pleistocene	Bliss	Loof Fork	400
			Loof River	110
			John Day	1000
			Upper Nevada	1000
	Bliss	Bliss	White River	1000
			Nev. I. L. L. N. L. L. Col. Canada	1000
	Recent	Bliss	White (Utah)	800
			Bridges	2000
			Byron, Utah	800
			King River	800
			Basatch	2000
			(Byron, New Mexico)	300
			Taragon	300
			(New Mexico)	500

Age of Mammals	Cenozoic				
	Eocene			Torreya	300
Age of Reptiles	Cretaceous	Upper		Puerco	500
				Manitou	1000-1500
				Montana	1200-1700
				Colorado	1000-2000
				Dakota	400-5000
		Lower		Comanche	
				Beal den	300
				Potomac	2000
				Purbeck	
					1000-
Age of Reptiles	Triassic	Mid		Stensfeldt slates (Exp)	Lies + 4000
				Chert	
				Richmond Coal	
				Red Sandstone (area)	3000
				Keuper	6000
Age of Reptiles	Permian	Lower		Bunter	
					600
					1000



At Loayzi also on 9th
near Mr. Kaji I secured
Murchisons Lilurija with her
autograph to Prof. Hitchcock
for \$1.50. A bargain.

with Marshall. All these cases
are then in frame of a unit
about 4 feet. The glass sashes
fit into the iron frame and in
that way cheap cases are secured.
Three sheet cubic cases and the
tables including the shelving are
secured for about \$30. The
shelving and support is that of
the Westar Institute - gas pipe
in uprights with moveable arms
secured by a screw.

Phil. Oct 18-98

Spent the morning looking over
two second hand book stores.
At Mr. Day 23, 9th S. I purchased
the 340 vol. of Penn. by Rogers
for \$3.00. Lesley Dick and Hall &
Queker for \$1.00. Lyell's Principles for
25¢ - 1 copy, Miller 10¢ and three
other books for 9¢.

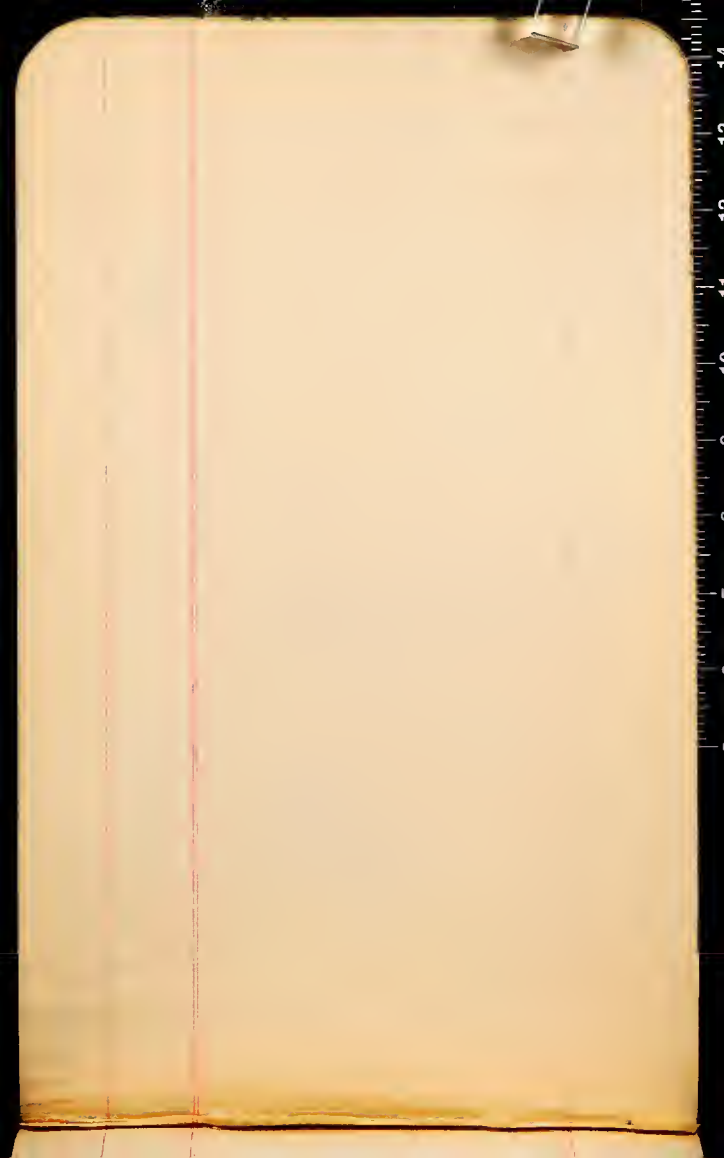
Washington, Oct 16-98
Left for Philadelphia at 12.
15 P. M. Stopping at the "Hanover 12th"
and Arch street 1/2 day

Philadelphia Oct 17-98
Spent a good portion of the
morning at Cramp's Ship Yards.
Also saw the grave of Benjamin
and Deborah Franklin. In the
same region is also the house
of Peter Roz.
I secured three books (Machin
Sept. N. A. & the two reports of Fla-
threstman for 2nd at a second
hand shop on 13th &
to their no 33 North. He also
had Lear Tertiary paper in
fine condition for \$3.00 Also
the five Ann. Rep of the Royal
Society for \$5.00

Spent most of the afternoon
at Philadelphia Museum Ass.

with Marshall. All their cases
are in 1200.





324 - 1. Ave S.E.

Mrs. White

1316 5th S.E.



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